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ABSTRACT

College teaching and learning were studied with respect to students' preferences for learning and motivation as they relate to various instructional methods used in teacher education. A traditional lecture format and the cooperative group discussion teaching method were compared within a specific college population. Participants (N=20), students enrolled in an undergraduate curriculum and instruction course, completed the Learning and Study Strategies Inventory (LASSI), which measures students' attitudes and motivation, and the Learning Preference Scale: Students (LPSS), which determines cooperative, competitive, or individualistic preferences for learning. Comparisons were utilized to describe relations to gender, high school grade point average, college major, and the LPSS and LASSI scores. The technique of ethnographic interviews further addressed research questions. The data showed that: cooperative learning at the college level in teacher education yielded positive outcomes for students of different genders, academic ability, college majors, and previous instructional experiences who studied together in the same course; and students' interest in the material, use of language in learning the material, and an active pursuit of learning were enhanced by structuring cooperative groups. (LL)

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# INSTRUCTION IN TEACHER EDUCATION:

# A DESCRIPTIVE STUDY OF COOPERATIVE LEARNING

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Abstract

Cooperative Learning

As a qualitative study, this research on college teaching and learning takes into account preferences for learning and motivation as they relate to various instructional methods used in teacher education. It compared a traditional lecture format and the cooperative group discussion teaching method with a specific college population. The Learning and Study Strategies Inventory (LASSI) by (Weinstein and Palmer, 1987), measured students' attitude and motivation; The Learning Preference Scale: Students (LPSS) developed by Barnes, Owens, and Straton (1980) was used to determine cooperative, competitive or individualistic preferences for learning. Descriptive comparisons were used to describe the relationships to gender, high school GPA's, major and the LPSS and LASSI scores. The technique of ethnographic interviews with was used to further address research questions in the study.

## INSTRUCTION IN TEACHER EDUCATION: A DESCRIPTIVE STUDY OF COOPERATIVE LEARNING

The assessment of college teaching and college student learning can play an important role in improving college instruction. Kulik et al. (1986) suggested more knowledge is needed regarding the effects of various methods of instruction at the college level. Researchers predicted that teaching effectiveness in instructional methods will be a priority for the future; therefore, it is essential that postsecondary educators today gain a current understanding of effective instruction.

McKeachie, Pintrich, Lin, and Smith (1986) suggested three aspects of instruction will make a difference in college teaching: student discussion, explicit emphasis on problem-solving procedures, and verbalization and modeling of thinking strategies. The review of the literature indicated these aspects can be provided effectively through structuring cooperative learning groups in the college classrooms in conjunction with other methodologies.

The work of Cooper (1990), Davidson (1985), Johnson and Johnson (1989), Slavin (1987), and Webb (1985), in the latter part of the 1970s and early 1980s has had a profound effect on elementary, secondary school, and recently, college-level curriculum concerning cooperative structures. Over 1,000 studies have been conducted on Cooperative Learning at the pre-collegiate level. Although there has been substantial change in the awareness of instructional methods used at the postsecondary level, few descriptive studies have been undertaken that describe students' attitudes during small group lecture methods at the postsecondary level.

If we expect future teachers to teach children cognitive processes in a variety of instructional settings, then we as teachers of preservice teachers need to model, define, and demonstrate these processes. The literature also supported the assertion that students entering colleges of education today may be underprepared in cognitive processing and learn in a variety of ways. Additional assertions from the literature indicated preservice teachers, as well as the students they will be teaching, may lack the ability to direct their learning and behaviors due to deficits in sociolinguistic experiences, such as the use of elaboration and rehearsal strategies in cooperative structures. In order for these prospective teachers to utilize different types of instruction to meet the needs of their future students, they need to experience various types of instruction.

This study was based on the premise that there is a need for developing small group skills in pre-service teachers as a basis for directing student groups as well as functioning with colleagues. Although teacher education programs often taught small group work as part of a methods course, the literature indicated education students seldom have an opportunity to function in structured small groups on a regular basis. Descriptive research in the area of college-level learning and specifically teacher education is needed to provide the field with the knowledge about student learning processes and attitudes to expand their knowledge of various types of instruction which could influence their own learning.

The purpose of the study was to describe elementary and secondary education majors' learning as it relates to instruction in a preservice teacher education course. This study examined the effects of small-group instruction on student attitudes, preferences for instruction, and motivation during assigned tasks related to the methods course. The study was designed to discover the relationship of students' attitudes and motivation to gender, major, high school grade point average, and the preference for individualistic, competitive, or cooperative structures.

## Theoretical Foundations of Cooperative Learning

Slavin (1987) argues that the theoretical foundation of cooperative learning stems from two broad perspectives. The first theoretical framework holds the developmental perspective, derived in part from the theory of Vygotsky (1962), and the second theoretical foundation as the motivational perspective, related to the work of Lewin (1935) and/or Deutsch (1949).

Vygotsky was a pivotal figure in the history of cooperative learning with his approaches to language acquisition and cognitive development. Vygotsky's view is that collaborative activity among children promotes growth because children of similar age are likely to be operating within one another's proximal zones of development. This developmental perspective suggests that children learn higher functioning with language as the key mode through which we organize our verbal thinking and regulate our actions. When they engage in activities and dialogue with others, usually adults or more capable peers, they gradually internalize this dialogue so that it becomes their inner speech which directs their own behavior and thinking. Our inner speech, which is conversations we carry on with ourselves, begins as a social dialogue with other people and is a major mode of learning, planning, and self-regulation. Vygotsky's (1962) research suggested that school helps students draw generalizations and "construct" meaning from their own experiences, knowledge, and strategies.

The motivational perspectives of Lewin and Deutsch on cooperative learning proceed from a different starting point than does the developmental theory of Vygotsky. Motivationalists are concerned with the reward or goal structure under which group members operate (Slavin, 1987). Cooperative goal structures create a situation in which the only way group members can attain their own personal goals is if the group is successful (Slavin, 1987). In either the developmental or motivational perspective, students make knowledge their own through intense interaction with others.

The major research question suggested by a qualitative approach to motivation becomes, "How do different types of structures enhance or inhibit motivation?" Traditionally, motivation has been a quantitative variable associated with energy, activity, and persistence (Ames & Ames, 1984). Competitive learning structures are restricted so that the likelihood of a given student's achieving success is reduced by the presence of other able students. As a consequence, the learner's goal often becomes the avoidance of failure rather than the pursuit of success (Covington, 1984).

There are implications from the studies on motivation achievement which may impact cooperative group structures. The usefulness of this research, then, is to help teachers reflect on their own repertoire and practices. In particular, self-efficacy (Bandura, 1977) has been identified as an important theoretical construct because it takes into account people's beliefs about their capacity to do what is expected.

Giving students a reasonable measure of control over their experiences in school is acknowledged to constitute an effective way of increasing their motivation to engage in learning tasks (DeCharms, 1976). Control and influence over events are motivating factors for many students in school. But students are largely denied control over their activities where one's work and time are almost totally prescribed (Sharan, 1990). The coercive nature of schooling affects pupils' motivation to learn, as well as their attitudes toward schooling and yet, these aspects are underestimated and rarely studied.

Motivation enhanced by a sense of control and efficacy is essentially intrinsic, independent of external reward, and provides its own reinforcement. Deci (1975) believed self-determination, the freedom to decide, plays an important role in motivation. Deci believes that schools should organize the environment to help the development of self-determined behavior and promote intrinsic motivation. The vast body of recent theory and research about the effects on students' motivation of self-regulation and of students' sense of control are consistent with the position presented here regarding the superior motivating impact of cooperative learning compared to traditional classroom instruction.

Another source of motivation in cooperative learning is the supportive nature of the students' relationships with their peers in small groups, and the important role each person plays within cooperative learning groups. The competitive atmosphere of the traditional classroom reduces the effects on the motivation of many students. By contrast, cooperative small groups foster interest in the tasks by including shared goals, mutual encouragement and assistance, and the opportunity to contribute to the group's progress regardless of one's academic status in the class (Johnson & Johnson, 1985, Slavin, 1987). These features of cooperative learning groups positively manifest socialization as a powerful motivating factor (Sharan, 1990).

## Language Interactions in Cooperative Learning

A series of studies on the benefits of oral interaction and using language to make sense of new information (Johnson et al., 1981; Webb, 1985). Studies conducted by Dansereau (1979) and his colleagues found that an elaborative strategy (integrating new information being learned with prior knowledge) was used more frequently by individuals in cooperative groups than by persons working in individualistic situations. Language helps us make sense of the world. The classroom, therefore, should be a place where oral language flows freely and readily from and between the people who are there to learn--the students. The classroom where students are using their language to come to terms with new information, to make sense of it so that it can become their own, is the context in which the most effective learning will take place. These findings have been supported at the undergraduate level as well. Elaboration influences the learning of both the student offering the help and the student receiving the help. For the student giving the help, giving explanations leads to increased learning. This is analogous to the benefits of "teaching." The process of giving explanations involves reorganizing and clarifying material, and in addition, clarifies what the help-giver does and does not understand.

There is also an indication that sex differences in the interaction patterns and achievement of students in cooperative learning groups may be significant. A study conducted by Webb (1984) indicated that "even though males and females had comparable ability, males outperformed females on an achievement test" (p. 25) after participation in a cooperative learning group. This was partly a result of the greater success of males than females in obtaining information and explanations from other group members

> . . . because of the tendency on the part of both females and males to ask males for help and the tendency for the females to be ignored even when they asked for help" (p. 42).

Consequently, Webb recommends that girls be taught to persist in their efforts to obtain information when working in a group. Further research by Dansereau et al. (1979) embarked on a study to explore a text processing strategy (called MURDER) to use by cooperative dyads. The strategy provided the dyad with a structured format for oral interaction. The MURDER strategy, which represented an expansion of the SQ3R study strategy (Robinson, 1946), included six steps for learning new text material: (a) mood for learning, (b) reading a section of text for understanding, (c) recalling the information that has been read, (d) Detecting errors and omissions that were made in the recall, (e) elaborating on the information to facilitate organization and storage of the information, and (f) reviewing all the information contained in the text. In this strategy, students alternated between the roles of listener and recaller. The recaller paraphrased the material that had been read and the listener detected errors and omissions and provided constructive criticism. Both individuals were responsible for developing elaborations. In support of this study, Johnson and associates (1981) found the cognitive rehearsal resulting from oral discussion of the material being learned most promising.

Perry's (1970) research indicates that intellectual development proceeds in stages for the college student. This research on developmental trends in college students' thinking showed that students' level of cognitive development or "stage" of thinking increases over the college years (Perry, 1970). Although this trend in students' thinking was positive, it did not really provide a framework for analyzing the college classroom and the types of instructional strategies and activities faculty members might use if they want to take a more active role in facilitating students' thinking (Pintrich, 1988). For example, McKeachie et al. (1986), in a more positive review of the college teaching and critical thinking literature, suggested three aspects of instruction make a difference:(a) student discussion, (b) explicit emphasis on problem-solving procedures, and (c) verbalization and modeling of thinking strategies to develop metacognition. Student participation, teacher encouragement, and student-to-student interaction positively relate to improved critical thinking. These three activities confirm other research and theory stressing the importance of active practice, motivation, and feedback.

Research comparing the relative effectiveness of teaching methods is extensive and points to broad generalizations about practice. Adult students, in particular, seem to need a variety of modes to meet their learning needs. Class discussions seem to be better than lectures when the goal of the course is to change attitudes to develop problem-solving skills (Kulik & Kulik, 1979). McKeachie et al. (1986) stated that the next best answer (after "It depends") to the question, "What is the most effective method of teaching," is

> "Students teaching other students." There is a wealth of evidence that students teaching other students is extremely effective over a wide range of content, goals, students, and personalities. (p. 63)

Observations from Patricia J. Green and Joan S. Stark (1986), in "Approaches to Research on the Improvement of Postsecondary Teaching and Learning," described the following concepts as useful in teaching postsecondary students:

1. Basic research on college student learning is advancing rapidly through progress in neuroscience and cognitive psychology. At present, these findings frequently are not field-tested or translated into practice.

2. The field of research on college teaching is underdeveloped. While attempted improvement in practice proceed by trial and error in scattered settings, little basic knowledge about the teaching process is available to inform us about the potential impact of intervention through changes in the way teachers teach. As external groups increasingly tend to make erroneous assumptions about college teachers, faculty members and institutional researchers may be more highly motivated to collaborate in answering some of the most basic questions.

3. An abundant literature on student characteristics (Perry, 1970) describes the ways in which students change during college and the correlates of student success.

4. Only recently has basic research been launched to explore the meaning of education to the student. Such studies, closely allied to developing psychological paradigms and ethnographic research methods, are expensive and rare. Institutional researchers should become familiar with the techniques and the appeal of such studies in order to encourage selected faculty members and counselors in theory collaborative pursuit.

5. In relatively few universities are institutional research personnel either appropriately trained or inclined to apply basic research to the improvement of teaching and learning. In some universities, a separate office of faculty instructional development also exists. A joint effort within these offices needs to facilitate the training of faculty members to be classroom researcher (Green & Stark, 1986, p. 19).

## College Level Instruction and Cooperative Learning

The research indicates cooperative learning should be considered as a strategy for active learning and incorporated into techniques already widely used by most college professors. Cooperative learning effectively implements and enhances a number of effective teaching and learning principles at the college level. It is a structured, systematic instructional strategy in which small groups work together to produce a common product. Cooperative learning can allow for significant amounts of meaningful student discussion at the college level which should enhance their satisfaction with the learning experience.

According to Cooper (1990), most college professors have received little or no instruction in pedagogy. As a result, they tend to teach students the way they were taught, using lecture and lecture-discussion techniques. Although the research on cooperative learning indicated that it is a powerful procedure for influencing student achievement and attitudes, the technique has not been systematically implemented in large numbers of college classrooms. The research indicated that appropriate implementation of cooperative learning techniques can increase student involvement, student enjoyment of the learning process, and student mastery of course content (Cooper, 1990). The time seems right for an increase in the use of learning groups (Bouton & Garth, 1983). Recently, college campuses have revealed a seriousness about teaching that has not been much in evidence since research became so important to higher education.

Cooper (1990) felt that the three components of positive interdependence, individual accountability, and group processing are the critical features of the effective Cooperative Learning classroom. Johnson, Johnson, Holubec, and Roy (1984, 1990) believed the effectiveness of a group carrying out its goal is determined by the presence or absence of five essential elements of cooperative group learning. These elements include positive interdependence, individual accountability, collaborative skills, group processing, and face-to-face interaction. Davidson (1985) questioned whether group goals and individual accountability are necessary at the college level, and there was some evidence that they may not be. Studies by Dansereau (1988), as well as some of the mathematics studies cited by Davidson (1985), provided examples of successful use of cooperative learning at the college level without group goals or individual accountability.

## Teacher Education

Teacher preparation courses have traditionally overlooked the issue of structuring student-student interactions and learning. As a result, teachers have not learned to intentionally create effective interactions between students in their classrooms. Teacher preparation courses generally neglect the whole issue of cooperation. Teacher training institutes spend little time helping teachers learn how to deliver cooperative skills to students. They put more emphasis on competition and individualization. Therefore, most classrooms reflect this imbalance.

If instructors would employ cooperative approaches, in teacher education courses, it would enable their students to experience the impact of these methods and then consider incorporating them into their own teaching repertoires. (Glass and Putnum,1989).

Furthermore, the skills, the sharing, helping, listening, goal setting, taking responsibility, and providing one another with feedback that are developed under cooperative learning conditions are also the same critical skills needed by teachers as they assume greater responsibility as entry-level teachers.

> However, not having experienced the benefits of cooperative learning in their teacher education programs, beginning teachers are often not equipped to create cooperative learning environments on their own, either for themselves or for their students. (Stover & Brent, 1988, p. 19)

## Context of the Study

The participants of the study were 20 students enrolled in an undergraduate curriculum and instruction course in the Education Department of a private four-year undergraduate college. The college is fully accredited by the Ohio Department of Education and the North Central Association of Colleges and Universities and the National Association of State Directors of Teacher Education and Certification. On an average, students coming to this college score 15% higher on ACT/SAT tests than the national average for elementary majors.

The college is small liberal arts college located in a village-type rural area. Most of the 1030 students are residents of the dormitories or on-campus housing. Many are traditional students. In the study there were 9 males and 11 females. Ages ranged from 19 years old to 22 years old. Fourteen were sophomores, 4 were juniors, and 1 either a senior or a postgraduate. There were 7 secondary education majors and 13 elementary majors. Most of the students had a job and were carrying a full load of 16 semester hours or more. Several were in athletic programs. Subjects for this study were enrolled in the class for spring semester,1991.

The classroom in which the study was conducted was the room typically used for the curriculum and instruction course. Double tables were arranged in an L-shaped pattern of four to allow for small group work. Between each table grouping was space for three or four chairs to be placed in a circle for group work away from the desks/tables.

## Background of the Course

The combination of elementary and secondary preservice teachers within the same class is a unique arrangement. The framework was built on the contention that all pre-service teachers need some of the same knowledge, skills, attitudes, and values regardless of major and combining elementary and secondary students may provide an arena for better understanding of the attitudes and beliefs of the other majors. The preservice elementary and secondary teachers used in this study were instructed in a lecture technique format and the lecture-cooperative group discussion format. The materials used during the study were designed to instruct pre-service teachers in the acquisition of knowledge and skills in curriculum, lesson plans, developing a unit of instruction, classroom management, learning strategies, motivation, teacher effectiveness research, questioning strategies, and methodologies.

High school graduate point averages were recorded from the transcripts and folders in the office of the Dean of Academic Affairs. Ten students were in the 2.00-2.75 high school GPA range and ten students were in the high school GPA range above 2.75. Of the 10 students majoring in elementary education, 8 of them were earning an additional certification in the area of specific learning disabilities or early childhood education.

## Method

This study was guided by specific research questions which focused on college teaching and learning within types of instruction and considerations about how students feel about academic tasks, their beliefs, and attitudes about learning and how they process information.

The intent of this study was to produce descriptive data regarding the context, activities, and perceptions of a select group of teacher education students participating in cooperative and discussion structured group activities within a curriculum and instruction course. A qualitative method was chosen most appropriate to the focus of this research. Three types of research methodologies were used to address these questions. The use of the Learning Preference Scale: Students (LPSS); the subscales of attitude and motivation in the Learning and Study Strategies Inventory (LASSI); and the use of interviews (Spradley, 1979).

The Learning Preference Scale: Students (LPSS, 1980, 1982) measured preferences for individualistic, competitive, or cooperative structures. Two subscales of the Learning and Study Strategies (LASSI, 1987), measured the attitude and motivation of college students. Both instruments were administered at the beginning of the semester before any experiences with cooperative learning was provided. Instruction on cooperative learning was provided during the fifth week. This was based on the premise that it is not enough just to tell students about the cooperative structures they should be trying to understand; if students do not understand the benefits of the particular strategies, they will be less motivated to use them in their own teaching experiences. At the end of the instructional treatments, the LPSS and LASSI were again administered. The eight students which showed the greatest change on the LPSS or LASSI pretest and posttest were interviewed. Interviews were audiotaped and transcribed on the IBM Ethnograph package (Seidel, Kjolseth, & Clark, 1988). The nine domain charts present the recurring themes of college students' perceptions of learning, motivation, and those cooperative structures they perceived as having the greatest effect on their learning. Responses from students indicate a relationship between motivation and learning and the discussions and verbalizations of peers within their base group. Specifically, students favored small groups that were structured with the components of individual accountability and group processing.

## Qualitative Methodologies

Use of the LASSI:

Current research has demonstrated that one way to influence the manner in which students process new information and acquire new skills is to instruct them in the use of learning strategies (Dansereau, 1985; Weinstein, 1978; Wittrock, 1985). One major issue of learning strategies relates to assessment. The successful evaluation and intervention of a learning strategies program requires a reliable and valid means for measuring students' deficits and progress.

The Learning and Study Strategies Inventory (LASSI, 1987) is a diagnostic and prescriptive assessment tool designed to measure students' use of learning and study strategies and methods. The focus is on both covert and overt thoughts and behaviors that relate to successful learning and can be altered through educational interventions. Students' scores on this scale measure their general attitudes and motivation for succeeding in school and performing the tasks related to school success. The 10 scales on the LASSI include: Attitude, Motivation, Time Management, Anxiety, Concentration, Information Processing, Selecting Main Ideas, Study Aids, Self-Testing, and Test Strategies. Although there are ten discrete components in the LASSI scale, this study will focus on attitude and motivation. Based on the student's scale scores in relationship to national norms or on a percentile cut-off score (75% being a common cut-off used on many campuses), prescriptions can then be made.

ATTITUDE SCALE:

The attitude scale contains items addressing attitude and interest in college. Students' general attitudes toward school and their general motivation for succeeding in school have a great impact on their diligence in study, particularly in autonomous situations in which they must study on their own. If the relationships between school and their life goals and attitudes about themselves and the world are not clear, then it is difficult to maintain a mind-set that promotes good work habits, concentration, and attention to school and related tasks. The scale

determines how clear the students are about their education goals and if school is important or worthwhile to them.

Students who score low on "The Attitude Scale" need to work on higher level goal setting and reassess how school fits into their future. If school is not seen as relevant to the student's life goals and attitudes, then it will be difficult, if not impossible, to generate the level of motivation needed to help take responsibility for one's own learning and for helping to manage one's own study activities (Weinstein, 1987).

MOTIVATION SCALE:

Students' scores on the motivation scale measure the degree to which they accept responsibility for performing the specific tasks related to school success. The degree to which the students accept the responsibility for studying and for their performance is reflected in the everyday behaviors they exhibit related to school and school tasks.

> These behaviors include reading the textbook,preparing for class, finishing assignments on time, and being diligent in studying even if the topic is not particularly interesting to them. (Weinstein, 1987, p. 6)

The motivation scale addresses students' diligence, self-discipline, and willingness to work hard. The scale questions the student's perseverance to stay up to date in class assignments and whether they easily lose interest in their classes (Weinstein, 1987). Students who score low on this measure need to work on accepting more responsibility for studying and achievement outcomes and learn to attribute much of what happens to them in school to their own efforts rather than to outside forces such as luck or poor teachers, or to uncontrollable forces such as innate ability. Accepting more responsibility and attributing success to one's efforts results in more effective studying and school performance. Since both overt and covert thoughts and behaviors contribute significantly to success in post-secondary educational settings, training can be learned or enhanced through educational interventions.

Use of the LPSS

The Learning Preference Scale was developed at the University of Sydney, Australia. The student version of the LPS (the LPSS) is composed of 36 brief statements about a feature of learning by cooperating with others, by competing with others, or by working alone. A 4-point Likert scale is used, with the response categories "completely true," "more true than false," "more false than true," and "completely false." Three subscores are calculated for each student, indicating strength of preference for cooperative, competitive, and individualized learning situations (Owens & Straton, 1980). This data showed attitudes are positively correlated with a pleasant regard for school personnel, intrinsic motivation, helpful attitudes toward peers, open expression of ideas and feelings, and self-esteem (Owens & Barnes, 1982). Use of the profiles from the LASSI and the LPSS and the comparison of individual student profiles to the norms will be used to identify the eight students who will serve as subjects of the interviews.

Use of Interviews

Research questions will be addressed through the use of the ethnographic interviews employed to provide background information about student perceptions concerning college-level instruction and their attitude and motivation toward learning. The students chosen for the interview questions were those students who had a change in scores on the pre- and post-LASSI and LPSS and constituted a balance between gender, grade point averages (GPAs), and elementary/secondary majors. Each participant was interviewed using the same questions based on Spradley's (1980) description, structural, and contrast questions. All the interviews were audiotaped and the tapes were then typed into the IBM Ethnograph (Seidel, Kjolseth, & Clark, 1988) word for word to ensure accurate records of collected data.

The Ethnograph read-out was then coded by the researcher to discover any multiple categories and properties, indicating the other categories in which that particular unit of meaning also applied within the interview data. The properties became increasingly elaborated as the transcripts were coded. Codes and their associated line numbers are entered according to prompts. Domain analysis gives "an overview of the cultural scene and some idea as to how the surface structure of that scene was organized" (Spradley, 1979 p. 174). Domain analysis provided the identification of cultural domains and the terms within them.

## Implementation of Cooperative Structures

Winitzky and Drickey (1989) indicated that beginning teachers, even with little exposure, come to value cooperative learning, intend to use it as teachers, and did use it during their student teaching. They believed cooperative learning appeared to be no more difficult for novices than any other strategy.

> Given the well-known effectiveness of cooperative learning with children, this is heartening news. We can give beginning teachers a firm enough grasp of cooperative learning so that they are capable of implementing it themselves in their own classrooms (p. 12)

Contrary to this, others argue that innovative strategies like cooperative learning are too difficult for entry-level teachers. They recommended that teacher educators first teach beginners how to negotiate and master conventional classrooms and then take up the challenge of cooperative learning strategies.

In the Winitzky and Drickey (1989) study, "The Use of Cooperative Learning with Preservice Secondary Education Students," the findings indicated both an incremental approach and an immersion approach can be effective when using cooperative learning in preservice teacher education. The authors concluded that providing experience with cooperative activities before introducing cooperative learning as a topic for study leads to more positive attitudes. Therefore, the study will not present cooperative learning as a topic until the fifth meeting with the students. The instructional intervention utilized various cooperative structures such as: Numbered Heads, Jigsaw, Focused Discussions I and II, Turn-to-Your-Partner, and MURDER. The structures were presented by the researcher using lectures and small group techniques to present a variety of topics generally taught in this course.

## Findings and Results

> Research Question 1: How does the student's GPA correlate with preference for cooperative structures?

The 11 elementary and 9 secondary education majors in this study had similar high school grade point averages. A comparison of GPA to cooperative preference indicated a significantly higher mean of 43.6 cooperative preference for those students with a GPA of between 2.00 and 2.75 compared to a mean of 36.9 for those students with a GPA of above 2.75. Therefore, ability as measured by high school grade point average showed a relationship to preferences for cooperative structures.

> Research Question 2: How does the student's gender relate to their preference for cooperative structures?

Contrary to other gender/cooperative comparisons with elementary and secondary school children (Owens, 1982), no significant difference was found between the males and females in this study. If, however, in looking at previous studies which researched elementary and secondary students (grades 4-11), gender preferences were found based on the ages of the

males and females, the findings from this study suggest the preference for instruction between gender may change with the age of the participants. Additional studies are needed at the college level to determine gender preferences in cooperative, competitive, or individualized modes.

Although this study's cooperative and competitive pre- and posttest means comparing gender showed little difference between males and females, the pre- and posttest individualized scores did show less individualized preferences on the posttest of both genders, particularly in the males (see Tables 1 and 2).

Table 1

Gender Individualized Preference, Pretest

| Group | N | Mean |
|---|---|---|
| Male | 9 | 33.444 |
| Female | 11 | 33.545 |

Note: X1: Gender 1; Y1: Ind. 2 Pretest

Table 2

Gender Individualized Preference, Posttest

| Group | N | Mean |
|---|---|---|
| Male | 9 | 30.0 |
| Female | 11 | 32.2 |

Note: X1: Gender 1; Y1: Ind. 2 Posttest

Research Question 3: How does the student's education major relate with his/her preference for cooperative structures?

At the beginning of the semester, this unique class composite showed a pretest cooperative mean (41.69) for elementary majors as higher than the pretest cooperative mean (37.28) for the secondary majors. The instructional treatments placed students in cooperative base groups after lectures according to major, gender, race, and GPA. No explanation, justification, or background knowledge on cooperative learning or group processes was given. During the fifth session, the researcher presented an overview of cooperative learning history, theory, and characteristics of effective use as the topic for the session. Two other sessions followed. The posttest was then given. After instructional treatments, a significant increase in preferences for cooperative structures was found with the secondary majors (Table 3).

Providing first-hand experiences functioning in a cooperative structure as well as teaching the use of small groups in the classroom seemed to have an effect on the secondary majors' preferences for small group discussions with lecture instruction. This supported Stover and Brent's (1988) study which provided direct experiences in cooperative learning within teacher education courses.

Table 3

Major/Cooperative Preference, Pre/Post

| Group | N | Pre/Mean | Post/Mean |
|---|---|---|---|
| Elementary | 13 | 41.69 | 40.84 |
| Secondary | 7 | 37.28 | 39.16 |

Note: X1: major 1; Y1 Coop. 1/2

Research Question 4: How does the student's attitude and motivation, as determined by the LASSI scores, relate with preference for cooperative structures?

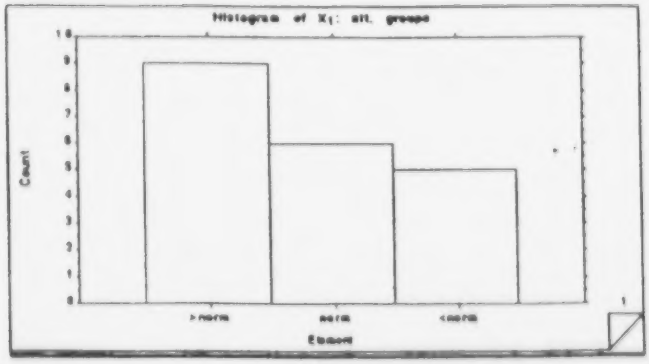
Previously, the attitude and motivation scores of this select group of preservice elementary and secondary majors were compared to the norm. The findings (Figures 1-2), indicated this group was above the norm in attitude and below the norm in motivation (31-34). Furthermore, the motivation scores decreased even more at the end of the semester. Further evidence was gathered during the interviews when the request, "Define the term motivation," was made of the eight interviewees. Those which decreased motivation were also asked what contributed to the decrease. The students' responses included statements such as,

> "My motivation has gone down. Just the weather and everything and I don't have the gumption to go and do it. Just getting down to the end of the year. I'm just slowing down. (ST. 10:75-80)

This response supported the changed scores from the motivation subscale to various motivation questions such as question 10: "I am up-to-date in my class assignments"; and question 33: "I talk myself into believing some excuse for not doing a study assignment."

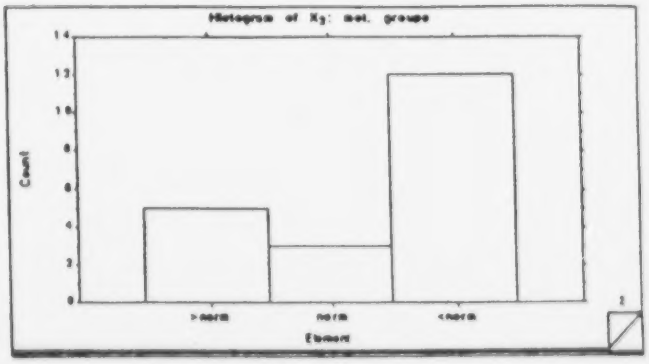
Elementary majors decreased in motivation more than secondary majors. In addition to the slight decrease in the motivation subscale for secondary majors, there was a significant increase in cooperative preference scores. As discussed earlier, secondary majors also displayed a decrease in the preference for individualized instruction.

Responses on the LASSI attitude and motivation subscales indicated that: (a) compared to the norm, the students in the study had a count of 9 above the norm, 6 within the norm, and 5 below the norm on the attitude subscale; and (b) compared to the norm, the students in the study had a count of 5 above the norm, 3 at the norm, and 11 below the norm in the motivation subscale (Figure 1 and 2). This data indicated an above average attitude score and a below average motivation scale comparing this group to the norm. A 75% rate at or above the norm on the attitude components compared to the norm compared to a 40% rate at or above the norm on the motivation component for the group.




Note: N = 20

Figure 1. Attitude norm bar graph.




Note: N = 20

Figure 2. Motivation norm bar graph.

Although the pretest and posttest attitude subscale showed little change, the pretest and posttest motivation subscale showed a significant decrease. The decrease in motivation from the beginning to the end of the semester was indicated in Figure 3.

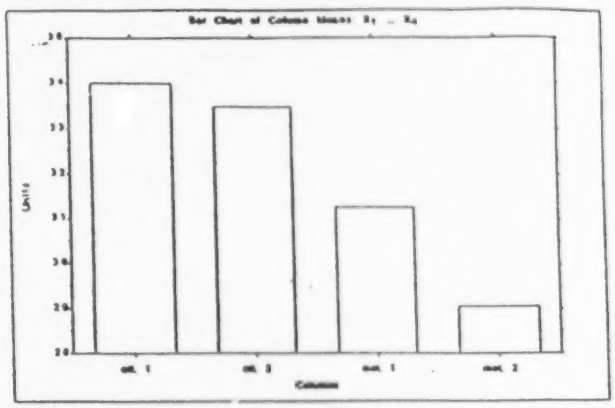


Figure 3. LASSI attitude/motivation pre/post bar graph.

A decrease in motivation occurred in both majors but more of a decrease with the elementary majors than with the secondary majors (Table 4). The attitude subscale mean had little change.

Table 4

Major to Motivation Pre/posttest

| Group | Count | Pre/Mean | Post/Mean |
|---|---|---|---|
| Elementary | 13 | 30.538 | 28.000 |
| Secondary | 7 | 32.571 | 31.333 |

Note: X1: Major 1 Y2: Mot. 1-2

Research Question 5: In a preservice methods course, how can the use of lecture with cooperative learning groups affect students' preferences for instruction?

The intervention instruction presented by the researcher appeared to have enhanced the participants' ability to consider, feel comfortable with, and report an overwhelming desire to implement cooperative structures in their future teaching repertoire. This suggested modeling and providing hands on experiences in structured groups during treatment could improve preservice teachers' ability to recognize relevant details to effective use of small group learning in addition to other methods of instruction.

Secondary majors had the greatest change in their preferences for cooperative learning and the results of this research suggested the need for secondary education majors to experience additional courses in instructional methods as well as content courses in their major field. This shift toward more pro-cooperative and less individualized preferences for instruction resulted in part from the instructional treatment provided in this study, particularly with secondary education majors. Perhaps the social need for secondary education majors is underestimated when they leave the education department to pursue their various disciplines in other departments. Secondly, it was evident that elementary and secondary students brought different interests, attitudes, feelings, beliefs, and values as well as the learning context as being either supportive, threatening, uncomfortable, etc. When blended groups were structured to include a heterogeneous balance of major, gender, and ability students cooperatively taught other students strategies, self-direction techniques, and problem solving. Much learning occurred through the guidance, direction, and support of others. In the present study, peers seemed to provide "other-regulation" (Vygotsky's [1978] theory of verbal self-regulation). Students provided other students with a purpose and reason for learning certain concepts. While the results of this study reported a superiority of cooperative specifically with students with a 2.25 to 2.75 GPA, over competitive and individualized learning structures, it does not suggest that all individualization or competition be dropped. Student responses include:

> It motivates you because everyone in your group expects you to know something. It makes you feel kind of bad when everyone adds something and you don't. It motivates you to do better. (ST. 18: 48-53)

and:

> The structured groups motivated me because we had to be ready and all had to know the answers. There wasn't certain people that were called on, we all had to be ready and had to be involved. (ST. 7: 24-28)

In this way, the knowledge and skills were first mastered in collaboration with others in a group structure. Once the knowledge and skills were presented in the group, students seemed to internalize the information as part of their own verbal thinking. One student described this belief by saying:

> Sometimes when I don't understand the material and I get in the group, it helps me to listen to what other people say; it may trigger something that will enable me to understand a little better (ST. 15:66-71).

The student's language in the group became the tool for further learning as well as the individual partner's or group member's verbalizations being internalized by the learner and used later for recall. This type of reciprocal "talking" was the interactive dialogue revealed in the study between students and students. Peers also acted as a clarifier.

> It helped me combine my ideas with my partner's ideas and come to a good answer after the material was presented. He helped me sort through my thinking (ST. 3: 24-27).

Students tended to regulate others' verbalizations. The way language was used in this course between students and their peers had a direct effect upon performance and classroom learning as evident by their responses.

A comparison of the pretest and posttests of the cooperative and competitive component scores data from the Learning Preference Scale: Students (Owens & Barnes, 1982) indicated no significant change. The pretest and posttest of the individualized component of the LPSS showed a decrease in preference for the individualized mode of learning from a mean of 33.5 on the pretest to a mean of 31.16 on the posttest. This indicated a difference occurred after instructional treatments were provided (Figure 4).

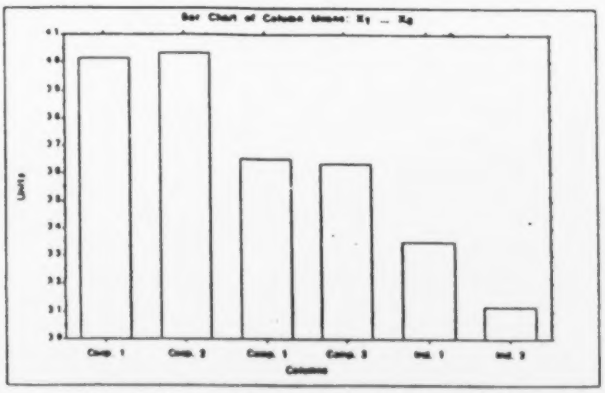


Figure 4. LPSS pre and post bar graph.

Research Question 6: How do different types of instruction in an education course affect students' perceptions of their own learning?

Although the outcome of cooperative learning had been established in various settings, few studies investigated the nature of individual interactions within group members. The study found communication mediates the effects of cooperative learning groups. Students needed to model their learning through language and thinking aloud. They felt teachers at all levels need to model and demonstrate problem solving and strategies through self-verbalizations in small groups.

Teachers should demonstrate and model the collaborative skills and learning processes that have become automatic and routine for them rather than assume students know how to use these skills and processes. This data supported Slavin's (1987) report of Vygotsky's research which described using speech and self-language to regulate learning and behavior. With the use of speech and self-language, the student can motivate, guide, limit, control, and reinforce actions. Vygotsky's (1978) theory argued that the development of speech is determined by outside factors, usually the social interactions of parents, peers, and significant others and the intellectual development and learning is framed by those verbal environments created within social interactions between people.

Viewing this theoretical foundation within the framework of ethnography has vital implications for language and learning in small groups. Cognitive self-instruction then could be structured within cooperative groups.

> "It seems like in small groups you get a lot more feedback. You can discuss easier in a small group. You can get a lot more ideas from your peers" (ST. 10:53-56).

Others in the groups can help the learner structure a task verbally. This guided practice time within groups was critical for learners before they performed independently. Some students suddenly seemed to realize they did not understand what to do only after they attempted to perform the task or skill. This practice with others helped to insure the learner understood the task accurately. From the responses of the students, it was suggested that groups can also

provide an arena for summarizing, questioning, clarifying, elaborating, and evaluating as well as practicing. The interaction between students became the context for learning.

Verbal rehearsal of key ideas increases recall. Verbal rehearsal of main concepts and ideas increased recall as indicated by student responses. By repeating a verbalization aloud to oneself, the language and verbal rehearsal of key ideas played an important role as it guided students' learning in cooperative structures in this study.

When implementing the Focused Discussion Structure the students' verbal interactions were guided by questions that helped them clarify, question each other, and summarize the material. These questions developed for use in the Focused Discussion structure helped organize the task between partners. The findings in the present study indicated language helped shape the processes of remembering and understanding of some of these students. They believed these verbal interactions of questioning each other and summarizing the material helped them remember the material for later use, particularly for their test.

Research Question 7: Will participation in cooperative learning strategies have an effect on the students' attitudes toward an education methods course?

The participation first hand in cooperative structures provided positive responses from the preservice teachers toward the curriculum and instruction course. One student said,

> I just think small group learning is a good idea. I appreciate the time you spent with us. You've given us some guidelines to help us in our student teaching and it was fun learning that way (ST. 18:186-190).

Two important components of cooperative structures seemed to help increase learning and success at the college level were individual accountability and group processing. The students seemed to have the component of positive interdependence within their groups without the need for it to be structured in the tasks. Perhaps this indicated college students were aware that group success depended on each member's contribution to the goal without the researcher structuring it in the activities.

Another consideration would be that the college students self-regulated the group's interdependence through the group processing time. Several students suggested the importance of individual accountability to help eliminate hitchhikers was based on their work during previous group tasks where some members of the group did not contribute. Specific instruction on structures could translate into improved instruction and beginning teachers could be better equipped to implement cooperative learning in their own classrooms.

> I really liked Numbered Heads because everybody had to be ready and involved. They had to be ready when called on" (ST. 7:10-12, 19).

Students liked the balance between peers offering direction and guidance without taking responsibility for the task. Small groups provided this direction and guidance yet students wanted each member to take responsibility and be individually assessed. No group grades were taken; rather group bonus points and individual improvement points toward a group score were given. Therefore, individual accountability was an important component needed for cooperative learning at the college level. The other component the students discussed was group processing.

The base groups of four members stayed together the entire semester. It was noted by the researcher that the first evidence of effective group processing appeared after the fourth instructional treatment, and after the fifth instructional treatment (when cooperative learning was taught as a topic), groups started to demonstrate peer support, interest, and cooperation toward the group goal.

Ethnographic Interviews

This research question was designed to generate information on the perceptions of the participants in the study and their attitudes toward an education methods course after participation in instructional treatments of various cooperative structures. Analysis of the ethnographic interviews using Spradley's (1979) descriptive, structural, and contrast questions revealed words and phrases developed into the following nine domains (Figure 5). For the purpose of this paper, five domains (bold) will be discussed.

1. Comparison of lecture to cooperative structures after lecture.
2. **Motivation as it relates to small group instruction.**
3. Description of their cooperative learning experiences.
4. **Learning as it relates to lecture and/or structured cooperative groups.**
5. **Other college class instruction and learning.**
6. **Personal motivation.**
7. **Motivation as a teacher.**
8. **Applying cooperative learning to student teaching.**
9. Merits of specific cooperative structures.

Figure 5: Domains.

Using the interviews and Ethnograph coding as a foundation, domain analysis charts were then completed and graphically illustrate the terms within the domains. These charts showed the relationship of the domains from the interview questions asked of the eight participants. Each domain was labeled to include the cover term, characterization, and included terms.

Small group/lecture. The responses of preservice teachers as they compared structured small groups to lecture resulted in most of the participants equating their favor for small group instruction as it changed their attitude affectively and in a cognitive sense as how it affects their learning (see Figure 6).

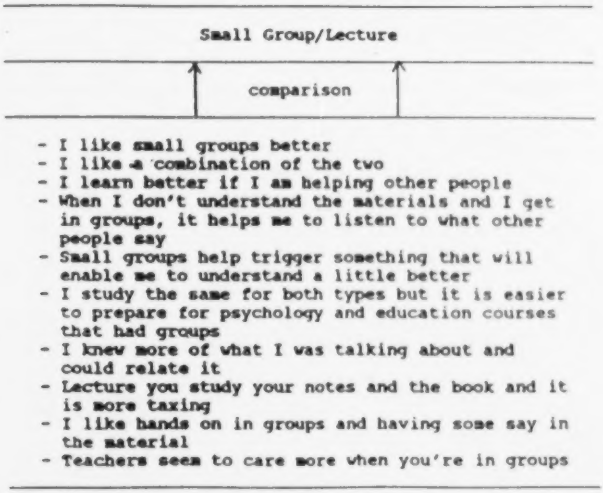

Small Group/Lecture
comparison
- I like small groups better
- I like a combination of the two
- I learn better if I am helping other people
- When I don't understand the materials and I get in groups, it helps me to listen to what other people say
- Small groups help trigger something that will enable me to understand a little better
- I study the same for both types but it is easier to prepare for psychology and education courses that had groups
- I knew more of what I was talking about and could relate it
- Lecture you study your notes and the book and it is more taxing
- I like hands on in groups and having some say in the material
- Teachers seem to care more when you're in groups

Figure 6: Domain comparing small groups to lecture.





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There were comments such as:

> In a lecture you are just taking notes all by yourself. You miss a lot of things. It is boring. Being in a small group you know people. Everyone will catch at least something that you didn't get; someone else will have it. (ST. 10:108-113)

Description of other college classes. Participants were asked to describe other college classes. Each preservice teacher interviewed was asked to explain their learning as it applied to other college classes. Those classes that had varied lectures with small group structures tended to be in the education and psychology departments (see Figure 7). Descriptions include:

> I like psychology and education courses because I like the hands on. I like the one to one with teachers. It seems to me that the teachers care more for you (ST. 15: 215-218).

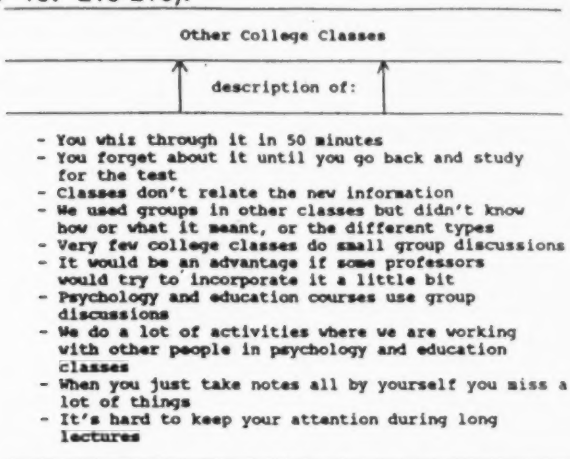
Other College Classes
description of:
- You whiz through it in 50 minutes
- You forget about it until you go back and study for the test
- Classes don't relate the new information
- We used groups in other classes but didn't know how or what it meant, or the different types
- Very few college classes do small group discussions
- It would be an advantage if some professors would try to incorporate it a little bit
- Psychology and education courses use group discussions
- We do a lot of activities where we are working with other people in psychology and education classes
- When you just take notes all by yourself you miss a lot of things
- It's hard to keep your attention during long lectures

Figure 7: Domain of the description of other college classes.

Cooperative learning as it applies to student teaching. Each preservice teacher indicated a desire to use a variety of small group structures in conjunction with other types of instruction after being a part of and learning the background for its use (see Figure 8).

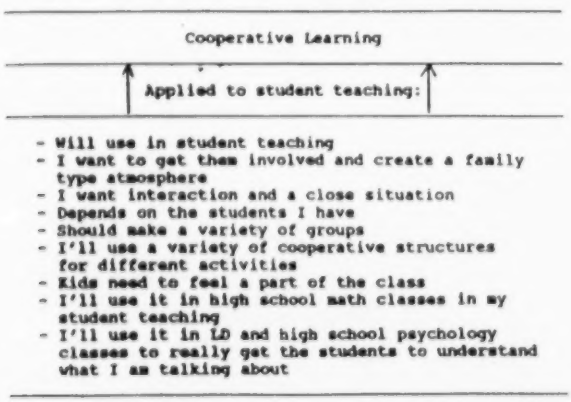
Cooperative Learning
Applied to student teaching:
- Will use in student teaching
- I want to get them involved and create a family type atmosphere
- I want interaction and a close situation
- Depends on the students I have
- Should make a variety of groups
- I'll use a variety of cooperative structures for different activities
- Kids need to feel a part of the class
- I'll use it in high school math classes in my student teaching
- I'll use it in LD and high school psychology classes to really get the students to understand what I am talking about

Figure 8: Domain of applying cooperative learning to student teaching.



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Personal motivation. Each preservice teacher was asked the structural question, "What does motivation mean to you?" The initial interviewees divided their answers from this question into two categories of motivation. They first addressed their own "personal motivation" as a college student and then addressed their view as a student teacher labeled "teacher motivation" for future discussion. After several students responded in this way, the question was made into a contrast question which sorted their perceptions into these two views of motivation. The domain of Figure 9 illustrated the student's view as a college student as taking responsibility for their own motivation. No student suggested the professors they had were responsible for helping them become motivated. Students' responses such as "a desire to do something," "give it energy," and "I can motivate myself" illustrate this belief.

One student mentioned:

> If I'm motivated, then I have a desire to learn. It takes a lot for me to be motivated. If I get involved in the task, then I'm OK and I'll give it energy. (ST. 16: 181-187)

Teacher motivation. The question, "What does motivation mean to you?" brought unsolicited answers to personal motivation described above and teacher motivation as students viewed themselves as student teachers. They described themselves as being responsible for motivating the students in their class (see Figure 10).

They did not suggest student responsibility for motivation, but again took on the responsibility in this role. The student seemed to take the responsibility of motivation during the role as a student as well as the responsibility of being a motivator during the role as a student teacher. Statements such as "being able to capture their attention," "being able to get your students interested," and "getting them to want to do it" suggested this belief.

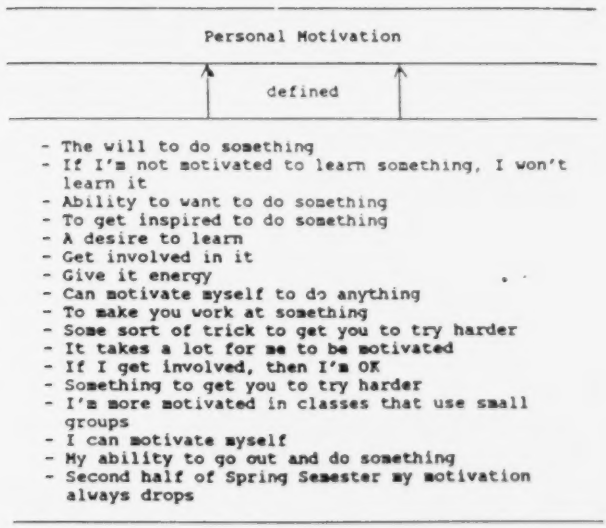
Personal Motivation
defined
- The will to do something
- If I'm not motivated to learn something, I won't learn it
- Ability to want to do something
- To get inspired to do something
- A desire to learn
- Get involved in it
- Give it energy
- Can motivate myself to do anything
- To make you work at something
- Some sort of trick to get you to try harder
- It takes a lot for me to be motivated
- If I get involved, then I'm OK
- Something to get you to try harder
- I'm more motivated in classes that use small groups
- I can motivate myself
- My ability to go out and do something
- Second half of Spring Semester my motivation always drops

Figure 9: Domain of the definition of motivation.

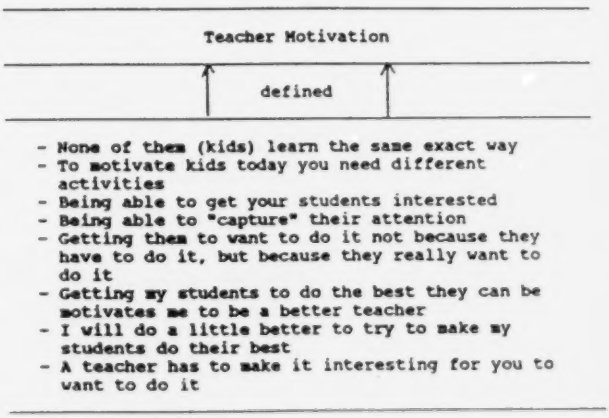
Teacher Motivation
defined
- None of them (kids) learn the same exact way
- To motivate kids today you need different activities
- Being able to get your students interested
- Being able to "capture" their attention
- Getting them to want to do it not because they have to do it, but because they really want to do it
- Getting my students to do the best they can be motivates me to be a better teacher
- I will do a little better to try to make my students do their best
- A teacher has to make it interesting for you to want to do it

Figure 10: Domain of the definition of teacher motivation.



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Interviewed participants were asked to describe how cooperative structures affected their motivation (see Figure 11). Motivation toward the use of cooperative learning structures included responses regarding:

> When we got into small groups, I liked that, it's fun, and it gets my ideas going. It makes me more excited to be there because of the involvement in the class (ST 16:81-85).

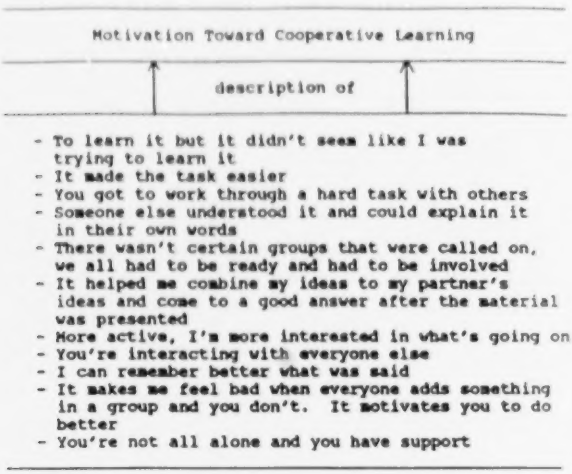
Motivation Toward Cooperative Learning
description of
- To learn it but it didn't seem like I was trying to learn it
- It made the task easier
- You got to work through a hard task with others
- Someone else understood it and could explain it in their own words
- There wasn't certain groups that were called on, we all had to be ready and had to be involved
- It helped me combine my ideas to my partner's ideas and come to a good answer after the material was presented
- More active, I'm more interested in what's going on
- You're interacting with everyone else
- I can remember better what was said
- It makes me feel bad when everyone adds something in a group and you don't. It motivates you to do better
- You're not all alone and you have support

Figure 11: Domain of the description of cooperative learning.

## Implications for College Teaching

There was clear confirmation regarding the value of cooperative learning for teacher education programs and instructors concerned with developing group participation and other collegial skills. Students also reported more critical thinking, greater opportunities to review information and get help, less confusion and frustration, and perceptions of being more intellectually challenged in cooperative versus lecture-discussion activities.

As indicated previously, the need to improve methods of instruction to promote higher levels of achievement is one of the goals of many college level teachers. From the research findings, cooperative structures seemed to enable students to feel they had a chance to succeed, that their efforts led to success, and that group members viewed success as a valued goal. Expectations of peers exerted during the performance of the group's task influenced the other group members' behavior and motivation, as indicated by the interview responses. These feelings were important attributes and essential predictors of group success, high achievement, motivation, and self-directed learners within the study. It appeared that college students who discussed course content under structured cooperative conditions felt more pressure to achieve from their peers, felt an obligation to their groupmates, and had a strong desire to win their groupmates' response as evident by student comments. Thus, the learning environment of college students included the social, affective, and learning components of the classroom and had a reciprocal impact of achievement, motivation, and on the student's toward learning, subject matter, and the course. These perceptions partly explained the positive outcomes of this study on cooperative structures. These findings supported the studies from the literature where students perceived their classroom climate as positive and were more motivated to participate in reaching group goals due to positive attitudes toward the learning process.

The present study attempted to describe the philosophical, developmental, and psychological principles that differ from those that underlie the prevailing style of college instruction. The effective implementation of these principles provided a major change in the nature of the college students' educational experience. This change cannot only lead to more positive views of learning, but higher-level learning as well. The components of this higher-level learning was reported by the interviewed students as they viewed cooperative structures providing knowledge, ideas, cognitive processes, opinions, and disagreements of their groupmates. Students were able to rethink and rephrase their thoughts and statements until the group task was concluded. When college instructors understand how students can learn by using strategies such as repetition, elaboration, or organization strategies within cooperative structures, they may become more alert of ways fostering cognitive strategies through course activities and cooperative structures.

Although student motivation scores moderately decreased at the end of the semester, the interview data attributed this to the time element of being at the end of the year, the amount of work due, and the obligations of spring sports. It appeared reasonable to attribute a portion of favorable student responses to being a part of a base group using cooperative structures and the understanding of specific cooperative learning guidelines and research. All students displayed considerable capacity for behaving cooperatively with one another, specifically after the fifth instructional intervention.

This study did not begin to question the use of language in cooperative structure at the college level. The importance of language and verbal strategies in groups resulted from the collection of the data and the interview responses. As the students pursued their group tasks, their perceptions of language and learning in cooperative structures unfolded. Learning through language in cooperative structures should be an instruction alternative available to college level students.

## Implications for Teacher Education

Cooperative structures have become an effective instructional tool of many teachers in this country and in other countries (Johnson et al., 1984), but unfortunately, they were not found in most teacher education programs. At least two themes for teacher education programs have emerged from the present study. First, the structuring of classroom interactions within cooperative, competitive, or individualistic instructional modes should be identified and instructed. Not only should the components and implementation of cooperative learning be taught, but also when the preservice teacher should implement these structures into certain content and tasks. Future teachers should understand that cooperative structures are more conducive to certain tasks and certain verbal strategies with the content of subject. They should use this knowledge in addition to other types of instruction, not in place of it. Innovative teacher preparation programs in cognitive self-instruction within small groups could provide future teachers with the capability of guiding their own learning and behavior. In order for maximum achievement in small groups, individual accountability and group processing should be structured. If positive interdependence is not an underlying part of how the college students view group processes, then it should also be structured within the small group by the instructor. Classroom students will lack many cognitive and linguistic strategies needed to learn. Therefore, teacher education students will need to direct students' learning during social interactions in classroom and school settings. Teacher education students should pay attention to how they talk to students and how they teach students to talk among themselves to focus, define, guide, cope with, and reinforce school tasks and goals.

A second theme for teacher education programs is that cooperation should be modeled and experienced by those teaching preservice students. Students in the study needed to be a part of and experience the processes of being in a base group, as well as learn by direct instruction the

definition and functions of base groups. They experienced the opportunity of working through problems within their base groups. After several weeks, their groups functioned better to meet the group goal or task. A higher level of understanding seemed to develop from this experience.

## Recommendations for Future Research

The following recommendations for future research were based upon the results of the study.

1. Conduct a longitudinal study to provide insight concerning these students as they become preservice teachers to determine whether they continue to learn more about group structures during their student teaching experience.

2. Study correlations of Dweck's Entity as it relates to students' attitudes and perceptions of learning in cooperative structures.

3. Study students' attitude as it relates to their perception of effort and if success or failure was due to their own efforts in various small group structures.

4. Further study the role from student to the role of an entry-level teacher and their changed view of motivation.

5. Investigate verbal rehearsal strategies which could be taught to preservice teachers for future implementation in their classrooms.

6. Study students' attitudes and motivation scores, as determined by the LASSI, to determine if they change during subsequent semesters.

## Discussion

The collection and analysis of the data in this study produced a wide range of relationships, perceptions, and correlations on the students' perceptions and attitudes toward instruction in a preservice education methods course for elementary and secondary majors. Working toward a common goal with peers and active involvement in deciding the process they wished to take in completing the task were critical factors in the motivation for students in cooperative structures. Several dimensions of the college student's previous experiences in whole group or small group structures affected their attitudes prior to the beginning of this research. The effects found in this study were moderate, but there were many unanticipated findings as well.

The study focused on the perception of students' learning, attitudes, and motivation and its relation to instruction. The study concluded that cooperative learning at the college level in teacher education more often than not yielded positive outcomes for students of different genders, academic ability, college major, and previous instructional experiences who studied together in the same course. A final conclusion was that the students' interest in the material, use of language in learning the material, and their active pursuit of learning was enhanced by structuring cooperative groups. In light of the above considerations, the study suggested cooperative learning at the college level will have a direct positive effect on students' perceptions of their learning and achievement, as well as an indirect effect on achievement by student's success, use of language, and motivation to learn.

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